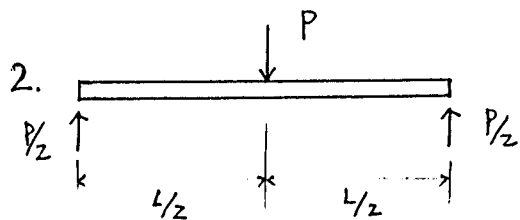
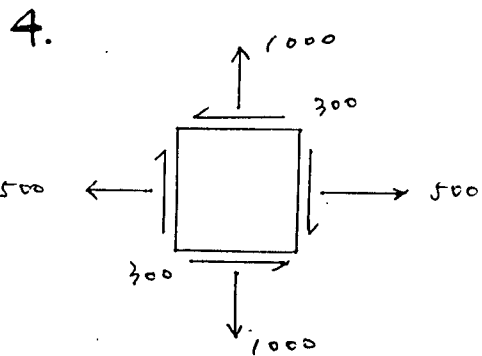


1. 在板理論中, "plane section remains plane" 的物理意義為何? 在什麼情況下才成立? (5%)

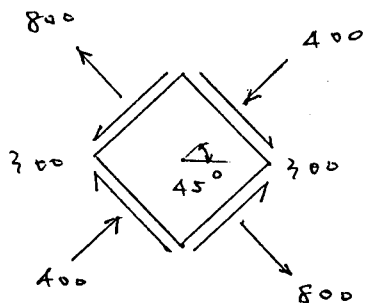


試問此梁中央斷面上之剪力為何? (5%)

3. 何謂挫曲 (buckling)? 稻子成熟後, 稻穗將稻莖壓彎而下垂, 是否為挫曲現象? 為何? (10%)



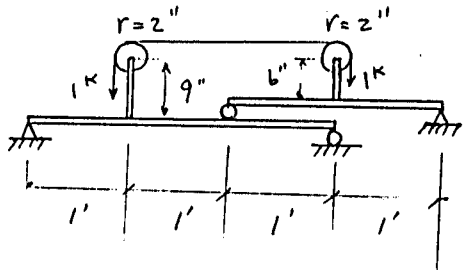
The element shown here is subjected to two set of stresses at the same time. Find, by using Mohr's circle, the magnitudes of the normal and shearing stresses on



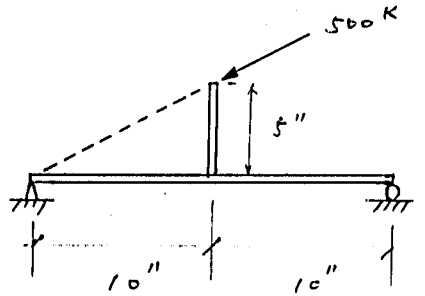
(1) the principal planes
 (2) the planes of maximum shearing stress. (20%)

5. Draw bending moment and shearing force diagram for the following beams: (20%)

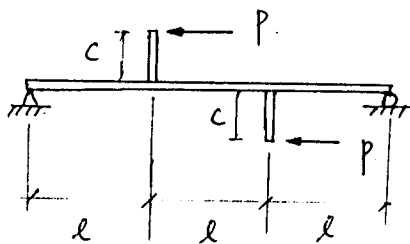
(1).



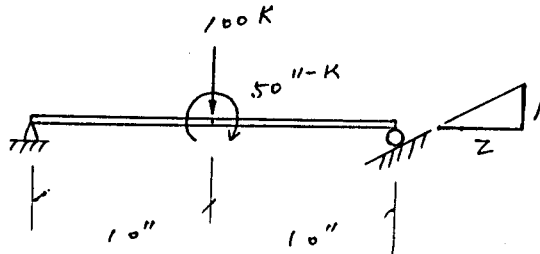
(2)



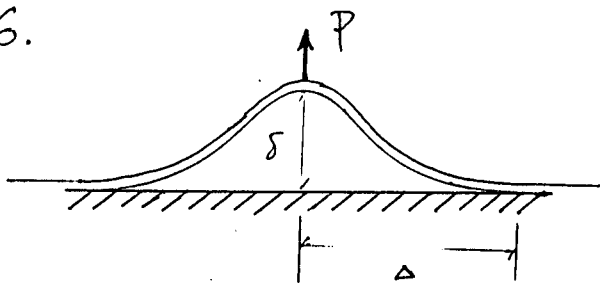
(3)



(4)



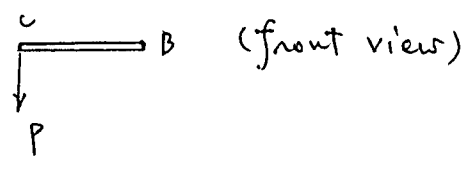
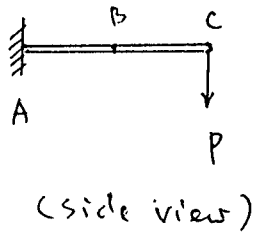
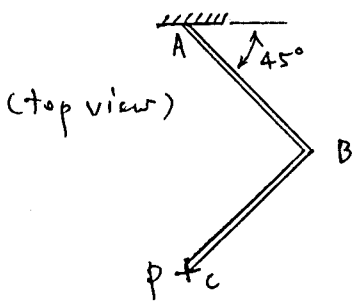
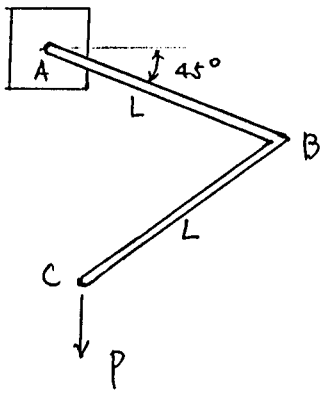
6.



An infinite beam is rested on a rigid foundation and pulled by a concentrate force

P . Please find δ and Δ from the following data: Young's modulus E , moment of inertia I , weight per unit length γ . (20%)

7.



The structure shown consists of a round tube, section properties EI , GJ , length L , in a horizontal plane. The free end supports a load P . Please find the vertical displacement of the point C . (20%)